

ELECTROLARYNGEAL SPEECH ENHANCEMENT FOR TELEPHONY

ABSTRACT

A technique for separating an acoustic signal into a voiced (V) component corresponding to an electrolaryngeal source and an unvoiced (U) component corresponding to a turbulence source. The technique can be used to improve the quality of electrolaryngeal speech, and may be adapted for use in a special purpose telephone. A method according to the invention extracts a segment of consecutive values from the original stream of numerical values, and performs a discrete Fourier transform on the this first group of values. Next, a second group of values is extracted from components of the discrete Fourier transform result which correspond to an electrolaryngeal fixed repetition rate, F0, and harmonics thereof. An inverse-Fourier transform is applied to the second group of values, to produce a representation of a segment of the V component. Multiple V component segments are then concatenated to form a V component sample stream. Finally, the U component is determined by subtracting the V component sample stream from the original stream of numerical values.